

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-18 (canceled).

Claim 19 (previously presented): A permanent magnet for a particle accelerator to be used in an environment in which the magnet is exposed to a radiation at an absorbed dose of at least 3,000 Gy,

wherein the magnet includes R (which is at least one of the rare-earth elements), B (boron), TM (which is at least one transition element and includes Fe) and inevitably contained impurity elements, and

wherein the magnet is a sintered magnet that has been magnetized to a permeance coefficient of 0.5 or more and that has a coercivity H_{ci} of 1.6 MA/m or more.

Claim 20 (previously presented): The permanent magnet of claim 19, wherein the sintered magnet has a composition including

25.0 mass% to 40.0 mass% of R,

0.8 mass% to 1.2 mass% of B,

inevitably contained impurity elements, and

TM as the balance.

Claim 21 (previously presented): The permanent magnet of claim 19, wherein R includes Nd and/or Pr as its essential element(s).

Claim 22 (previously presented): The permanent magnet of claim 21, wherein R further includes Dy and/or Tb.

Claim 23 (previously presented): The permanent magnet of claim 19, wherein TM includes Co, which accounts for at most 1.0 mass% of the overall magnet.

Claim 24 (currently amended): A magnetic field generator to be used in an environment in which the magnetic field generator is exposed to a radiation at an absorbed dose of at least 3,000 Gy,

the magnetic field generator including a plurality of permanent magnets that are arranged substantially in a C or U shape ring so as to define a magnetic field generating space, wherein each said permanent magnet includes R (which is at least one of the rare-earth elements), B (boron), TM (which is at least one transition element and includes Fe) and inevitably contained impurity elements, and

wherein the magnet has been magnetized to a permeance coefficient of 0.5 or more and has a coercivity H_{ci} of 1.6 MA/m or more.

Claim 25 (currently amended): The magnetic field generator of claim 24, wherein each of the plurality of permanent magnets is a sintered magnet having the sintered magnet has a composition including of:

25.0 mass% to 40.0 mass% of R_{7i}

0.8 mass% to 1.2 mass% of B_{7i}

inevitably contained impurity elements s_{7i} and

TM as the balance.

Claim 26 (previously presented): The magnetic field generator of claim 25, wherein the permanent magnets include a first magnet and a second magnet, which face each other with the magnetic field generating space interposed, and

wherein the first and second magnets are arranged along a line that passes a center portion of the magnetic field generating space and that is parallel to a magnetic field direction in the center portion.

Claim 27 (previously presented): The magnetic field generator of claim 26, wherein a magnet assembly made up of the permanent magnets is substantially symmetric with respect to a first plane including the line, but is asymmetric with respect to a second plane that includes the line but that crosses the first plane at right angles.

Claim 28 (previously presented): The magnetic field generator of claim 27, wherein at least a portion of the outer periphery of the magnet assembly is covered with a ferromagnetic material.

Claim 29 (previously presented): The magnetic field generator of claim 28, wherein the permanent magnets further include

a third magnet and a fourth magnet, which are arranged so as to sandwich the first magnet between them, and

a fifth magnet and a sixth magnet, which are arranged so as to sandwich the second magnet between them, and

wherein the size of the third magnet as measured perpendicularly to the second plane is smaller than that of the fourth magnet as also measured perpendicularly to the second plane, and

wherein the size of the fifth magnet as measured perpendicularly to the second plane is smaller than that of the sixth magnet as also measured perpendicularly to the second plane.

Claim 30 (currently amended): ~~The magnetic field generator of claim 29, further comprising~~ A magnetic field generator to be used in an environment in which the magnetic field

generator is exposed to a radiation at an absorbed dose of at least 3,000 Gy, the magnetic field generator comprising:

a plurality of permanent magnets that are arranged substantially in a C or U shape so as to define a magnetic field generating space; and

additional magnets for changing the strength of the magnetic field to be generated in the magnetic field generating space;; wherein

each of the plurality of permanent magnets includes R (which is at least one of the rare-earth elements), B (boron), TM (which is at least one transition element and includes Fe), and inevitably contained impurity elements and is a sintered magnet having a composition of:

25.0 mass% to 40.0 mass% of R;

0.8 mass% to 1.2 mass% of B;

inevitably contained impurity elements; and

TM as the balance;

each of the plurality of permanent magnets have been magnetized to a permeance coefficient of 0.5 or more and has a coercivity H_{ci} of 1.6 MA/m or more;

the plurality of permanent magnets include:

a first magnet and a second magnet, which face each other with the magnetic field generating space interposed;

a third magnet and a fourth magnet, which are arranged so as to sandwich the first magnet between them; and

a fifth magnet and a sixth magnet, which are arranged so as to sandwich the second magnet between them;

the first and second magnets are arranged along a line that passes a center portion of the magnetic field generating space and that is parallel to a magnetic field direction in the center portion;

the size of the third magnet as measured perpendicularly to the second plane is smaller than that of the fourth magnet as also measured perpendicularly to the second plane;

the size of the fifth magnet as measured perpendicularly to the second plane is smaller than that of the sixth magnet as also measured perpendicularly to the second plane;

a magnet assembly made up of the permanent magnets is substantially symmetric with respect to a first plane including the line, but is asymmetric with respect to a second plane that includes the line but that crosses the first plane at right angles;

at least a portion of the outer periphery of the magnet assembly is covered with a ferromagnetic material; and wherein

the additional magnets form a moving magnetic circuit portion, which couples magnetically to at least some of the permanent magnets, and are supported such that their positions relative to the magnetic field generating space are changeable.

Claim 31 (previously presented): The magnetic field generator of claim 30, wherein the moving magnetic circuit portion includes a plurality of magnets as its members, the magnets being movable horizontally.

Claim 32 (previously presented): The magnetic field generator of 29, wherein the permanent magnets further include a seventh magnet, which is located between the fourth and sixth magnets.

Claim 33 (previously presented): The magnetic field generator of claim 24, further comprising a mechanism for keeping the temperature of the permanent magnets lower than room temperature.

Claim 34 (currently amended): The magnetic field generator of claim ~~24~~27, wherein a ferromagnetic body, which changes its thickness according to a distance from the second plane, is provided on each of opposed surfaces of the first and second magnets.

Claim 35 (previously presented): The magnetic field generator of claim 24, wherein each of the permanent magnets has a rectangular parallelepiped shape.

Claim 36 (previously presented): A particle accelerator comprising
the magnetic field generator of claim 24, and
a shielding plate with a thickness of at least 0.1 mm, which is provided between the
magnetic field generator and a source of a radiation.